Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Promoting Investment in the	)	GN Docket No. 17-258
3550-3700 MHz Band	)	
	)	

COMMENTS OF MOBILE FUTURE

Robert M. McDowell
Chief Public Policy Advisor

Margaret McCarthy
Executive Director

Mobile Future
1325 Pennsylvania Avenue, NW, Ste. 600
Washington, DC 20004
(202) 756-4154
www.mobilefuture.org

December 28, 2017

TABLE OF CONTENTS

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Promoting Investment in the 3550-3700 MHz Band	)	GN Docket No. 17-258
	)	
	)	

COMMENTS OF MOBILE FUTURE

Mobile Future submits these comments in response to the above-captioned Federal Communications Commission's ("FCC" or "Commission") Notice of Proposed Rulemaking[1] seeking comment on proposed changes to the Citizens Broadband Radio Service ("CBRS") rules governing the 3550-3700 MHz ("3.5 GHz") band.

I. INTRODUCTION

U.S. wireless carriers have already hit the ground running in the race to 5G – densifying their networks, obtaining new spectrum, and trialing 5G services across the country while pushing the standards development process forward. The Commission has matched this leadership through ambitious efforts to free up additional spectrum and streamline the infrastructure deployment process. Ensuring the successful and widespread use of 3.5 GHz spectrum for 5G is a critical part of that leadership. Recognizing that 5G will require a multi-band approach, there should be consistency in the service rules applied to low-, mid-,and high-band spectrum. There is no basis for substantially different license terms and geographic areas for Priority Access Licenses ("PALs") in the 3.5 GHz band compared to other bands already identified for 5G – from 600 MHz all the way up to 39 GHz (or even higher). Therefore, the

[1] *Promoting Investment in the 3550-3700 MHz Band*, Notice of Proposed Rulemaking and Order Terminating Petitions, 32 FCC Rcd 8071 (2017) ("*NPRM*").

Commission should revise the PAL service rules to align with those applicable to other 5G bands. These modifications include: (1) lengthening the license term to ten years; (2) providing for an expectation of license renewal; (3) increasing the geographic license area from census tracts to Partial Economic Areas ("PEAs"); and (4) facilitating partitioning and disaggregation in secondary market transactions. Doing so will reduce the uncertainty inherent in the current rules without causing any delay in the rollout of the CBRS.

The novel approach to the 3.5 GHz band offers a new sharing model that potentially holds significant promise for the future – if it works. Creative spectrum policy will be essential going forward, given the growing demands for finite spectrum. At the same time, there is no need to add further complexity to the already complicated experimental three-tier access regime in this band. As Commissioner Rosenworcel has recognized, when faced with "an undeniably complex undertaking … bias towards simplicity is crucial."[2] The proposed changes are also consistent with the policy goals that the Commission has established in this proceeding – namely, to ensure service rules governing 5G bands keep up with technological advancements, create incentives for investment, encourage efficient spectrum use, support a variety of different use cases, and promote robust network deployments in both urban and rural communities.[3] These changes will also better fulfill the statutory goals of Section 309(j) of the Act.[4] Moreover, as the Commission recognizes in the *NPRM*, "these changes are consistent with the service rules and license assignment models that helped foster the development of 4G and LTE services."[5]

---

[2] *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567, 7036 (2014) ("*Incentive Auction R&O*").

[3] *See NPRM*, 32 FCC Rcd at 8072 ¶ 2.

[4] *See* 47 U.S.C. § 309(j)(3).

[5] *NPRM*, 32 FCC Rcd at 8072 ¶ 2.

There is no reason to abandon this successful approach as we transition to 5G. The regulatory structure, and the certainty it provided for industry, incentivized massive investment by the wireless industry for 4G which should be the model for 5G.

The rule changes supported herein will create greater certainty for wireless carrier investment – a critical objective if the U.S. is going to win the race to 5G – without foreclosing opportunities for innovative targeted solutions in smaller geographic areas. Further, the proposed modifications will not impact General Authorized Access ("GAA") use of the band – including unused PAL spectrum – nor will they diminish investment already made in reliance on the current rules. For these reasons, the Commission should swiftly adopt the *NPRM*'s proposed modest modifications to the PAL framework.

II. RECOGNIZING THE MULTI-BAND APPROACH TO 5G, SERVICE RULES FOR THE 3.5 GHZ BAND SHOULD BE CONSISTENT WITH OTHER 5G BANDS AND THE POLICIES THAT FACILITATED U.S. GLOBAL LEADERSHIP FOR 4G.

Consumer demand for bandwidth-intensive mobile services continues to skyrocket. Indeed, data traffic across America's mobile networks increased by 42 percent in just one year, from 9.6 trillion megabytes in 2015 to 13.7 trillion megabytes in 2016.[6] According to Ericsson, on a per smartphone basis, by the end of the year traffic will reach 7.1 gigabytes per month in North America, up from 5.2 gigabytes in 2016,[7] and monthly data per smartphone will continue to grow at a compound rate of 37 percent every year over the next five years, resulting in 48

[6] *See* Comments of Mobile Future, WC Docket No. 17-108, at 4 (July 17, 2017) ("Mobile Future RIF Comments"); *see also* CTIA, *Wireless Snapshot 2017* (2017), https://www.ctia.org/docs/default-source/default-document-library/ctia-wireless-snapshot.pdf.

[7] Ericsson, *Ericsson Mobility Report*, at 12 (Nov. 2017), https://www.ericsson.com/assets/local/mobility-report/documents/2017/ericsson-mobility-report-november-2017.pdf.

gigabytes per month by 2023.[8] This growth will require massive investments in new infrastructure as well as more spectrum. From 2010 to 2016, more than $200 billion of private risk capital was invested in America's broadband facilities[9] – all to the benefit of consumers who are enjoying higher quality services over faster networks at falling prices. Nearly the entire U.S. population can choose from multiple 4G LTE providers: 96.6 percent lives in areas where three or more mobile broadband providers offer LTE, and 88.6 percent lives in areas where four or more providers offer LTE.[10] And mobile broadband speeds have soared – 4G LTE speeds today are more than three times faster than average wired speeds in 2007.[11] Meanwhile, the effective price per megabyte fell 99.6 percent from $1.37 per megabyte in 2007 to less than half a cent per megabyte in 2016.[12]

FCC policies that enabled this massive success should not be abandoned as we move to 5G, they should be emulated. There is broad consensus in the record that "the 3.5 GHz Band will play a significant role as one of the core mid-range bands for 5G network deployments throughout the world."[13] For example, Qualcomm has observed, "[t]echnologies such as … 3.5

---

[8] *Id.*

[9] *See* Mobile Future RIF Comments at 1-2.

[10] *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Twentieth Report, 32 FCC Rcd 8968, 9022 ¶ 77 Chart III.D.4 (2017).

[11] Comment of Maureen Ohlhausen, Acting Chairman, Federal Trade Commission, WC Docket No. 17-108 at 6-7 (July 17, 2017).

[12] Roger Entner, *Industry Voices—Entner: Consumer 'surplus' in wireless rises $192B in 2 years* (Aug. 14, 2017), https://www.fiercewireless.com/wireless/industry-voices-entner-consumer-surplus-wireless-rises-192b-2-years.

[13] *NPRM*, 32 FCC Rcd at 8072 ¶ 2.

GHz CBRS are building blocks for future 5G networks that will take connected experiences beyond what is foreseeable today."[14] T-Mobile has similarly noted that the 3.5 GHz band will provide capacity and coverage benefits, especially in dense urban and suburban markets, "that are vital in facilitating the transition to 5G and in meeting consumers' data demands."[15] And Ericsson has explained that 3.5 GHz is one of "[t]he most prominent band options under consideration" for 5G because it "provides very good mobile coverage, allowing longer reach when compared with the 28 GHz band" [16] – meaning it can travel farther and help deliver the promise of 5G to rural communities. To meet this growing consumer demand and keep up with carrier efforts to lead the world in 5G, the FCC must ensure the service rules for this band foster, not impede, a wide range of services and uses.

A. PAL License Terms Should Be Extended to Ten Years and Include a Renewal Expectancy.

The Commission should adopt its proposal to establish a ten-year term, with renewal expectancy, for PAL licenses. Doing so will foster needed investment in the band because, as Commissioner O'Rielly has explained, "entities looking at larger scale deployments require certainty that their investment will not be stranded."[17] Under the current rules, 3.5 GHz investors

[14] Qualcomm, *Small Cells: Enhancing coverage, capacity and experiences with shared/unlicensed spectrum* (Feb. 22, 2017), https://www.qualcomm.com/news/onq/2017/02/22/small-cells-enhancingcoverage-capacity-and-experiences-sharedunlicensed.

[15] T-Mobile USA Petition for Rulemaking, RM-11788, at 5 (June 19, 2017).

[16] Ericsson Technology Review, Fixed Wireless Access on a Massive Scale with 5G, at 4, 9 (Dec. 16, 2016), https://www.ericsson.com/assets/local/publications/ericsson-technology-review/docs/2016/etr-5g-and-fixed-wireless-access.pdf.

[17] *NPRM*, 32 FCC Rcd at 8110.

risk having their investment stranded in just three (or initially six) years.[18] A longer license term is even more appropriate given the significant planning and testing involved in deploying new technology and the siting obstacles that often complicate and delay build-out. These same concerns led the Commission to adopt ten-year (or longer), renewable license terms in other bands that will be essential to 5G deployment, including the 28 GHz,[19] 37 GHz,[20] and 39 GHz[21] bands and the repurposed 600 MHz band.[22] In the *Spectrum Frontiers* proceeding, for example, the Commission concluded that longer initial terms would "give licensees sufficient certainty to invest in their systems, particularly as the new technology is still nascent and will require time to fully develop."[23] At the same time, a longer license term (with renewal expectancy) will encourage deployment in rural areas by providing more time for investors to recoup their investments from a smaller customer base. Thus, there is no merit to the claim that extending PAL license terms will harm rural deployment, particularly if the Commission adopts its

[18] The current rules provide for a three-year license term. *See* 47 C.F.R. § 96.25(b)(3). However, "solely during the first application window," the FCC "will permit an applicant to apply for up to two consecutive three-year terms for any given PAL … for a total of six years." *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959, 3994-95 ¶ 105 (2015) ("*3.5 GHz R&O and Second FNPRM*").

[19] *See Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, et. al*., Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8023, 8077 ¶¶ 17, 176 (2016) ("*Spectrum Frontiers R&O and FNPRM*").

[20] *See id.*

[21] *See id.*

[22] *See Incentive Auction R&O*, 29 FCC Rcd at 6875, 6885 ¶¶ 759, 785.

[23] *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8078 ¶ 176.

proposal to allow for the partition or disaggregation of PAL licenses in secondary market transactions.[24]

B. The Geographic Licensing Area for PAL Licenses Should Be Increased From Census Tracts to Partial Economic Areas.

Increasing the PAL license area from census tracts to PEAs will stimulate additional investment, promote innovation, and encourage efficient use of spectrum resources in the band. Current spectrum license holders have already been deploying small cell technology – a basis the Commission previously cited for establishing the current census tract license areas[25] – in license areas larger than PEAs.[26] Licensing by PEA provides a reasonable middle ground between larger geographic areas and census tracts and is consistent with the license area adopted for other 5G bands. As the recent *Spectrum Frontiers R&O and FNPRM* concluded, PEA-based licensing will "incentivize[] investment in, and rapid deployment of, new technologies in the band"[27] – two of the Commission's primary goals in this proceeding.

Moreover, increasing the size of the license area will dramatically reduce the number of license areas – from an unwieldly 74,000 to a more manageable 416, thereby reducing

---

[24] *See NPRM*, 32 FCC Rcd at 8083 ¶ 31.

[25] *See 3.5 GHz R&O and Second FNPRM* , 30 FCC Rcd at 3992 ¶ 98 ("Census tract-level licensing also aligns well with small cell deployment. … PAL authorization in a highly localized fashion, *i.e.,* at the census tract level, will promote the use of the band for clusters of small cells.")

[26] *See, e.g.*, *AT&T Details 5G Evolution*, AT&T (Jan 4, 2017), http://about.att.com/story/att_details_5g_evolution.html (discussing AT&T's plans to densify its wireless network through the deployment of small cells); *Verizon Claims 'Largest Small Cell Deployment' in the U.S.,* FierceWireless, (Mar. 7, 2017) https://www.fiercewireless.com/wireless/verizon-claims-largest-small-cell-deployment-any-u-s-carrier ("Verizon is increasingly looking to small cells to increase capacity and improve network performance, particularly in urban areas.").

[27] *Spectrum Frontiers R&O and FNPRM*, 31 FCC Rcd at 8046, 8061 ¶¶ 82, 121.

interference risks and burdensome coordination between licensees at license border areas. Using PEAs will likewise simplify the auction process, saving valuable Commission time and resources. These were among the reasons the Commission adopted PEAs as the license area size for other bands earmarked for 5G, including the 37 and 39 GHz bands,[28] the 600 MHz band,[29] and most recently the 24 GHz band.[30]

PEA-based licensing also would promote the desired diversity of uses and users in the band, because "PEA are small enough to allow bidders to acquire a limited coverage area – often only a few counties – which should enable small businesses and rural carriers to compete with larger carriers in these areas."[31] At the same time, PEAs "may be easily aggregated by carriers that plan to provide service on a larger geographic scale."[32] Thus, as the *Incentive Auction R&O* concluded, "PEAs will best promote entry into the market by the broadest range of potential wireless service providers[.]"[33]

Claims that PEA-based licensing will inhibit the ability of small entities to win PALs at auction are thus unfounded. The recent 600 MHz Incentive Auction – which employed PEAs – resulted in 50 different parties obtaining new wireless licenses, including 23 entities seeking

---

[28] *See id.*

[29] *See Incentive Auction R&O*, 29 FCC Rcd at 6575, 6597 ¶¶ 18, 71.

[30] *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Second Report and Order, Second Further Notice Of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, GN Docket 14-177, *et al.*, FCC-17-152, ¶ 28 (rel. Nov. 16, 2017).

[31] *Incentive Auction R&O*, 29 FCC Rcd at 6603 ¶ 80.

[32] *Id.* at 6575 ¶ 18.

[33] *Id.* at 6597 ¶ 71.

rural bidding credits.[34] Small businesses have had similar success in other recent auctions, including those with larger license areas. Nearly half of the AWS-3 auction licenses were acquired by small businesses claiming designated entity status and, in the 2008 700 MHz auction, 55 percent of the winning bidders claimed designated entity bidding credits as a small business.[35] In addition, spectrum access concerns would be further diminished if the Commission were to enable secondary market transactions as discussed below. Doing so would provide PAL licensees' greater flexibility and opportunities to acquire PAL rights in smaller geographic areas where their business needs call for it, thus ensuring spectrum is actively used.

Finally, claims that spectrum would lay fallow if larger geographic area licensing are used is a red herring. Should a PAL licensee only offer service in a portion of its license area, the remaining area would be open to General Authorized Access ("GAA") users on a non-interfering basis. As such, the CBRS rules enabling opportunistic GAA access will ensure "efficient and intensive use"[36] of all 150 megahertz of spectrum.[37]

C. Allowing the Partitioning and Disaggregation of PALs in Secondary Market Transactions Will Further Enable Efficient Spectrum Use.

The Commission should adopt its proposal to allow PAL licensees to partition or disaggregate their PALs. As the *NPRM* observes, "allowing partitioning and disaggregation would be consistent with other [proposed] changes, and is consistent with the licensing paradigm

---

[34] *See* FCC, *Fact Sheet: The Incentive Auction By the Numbers* (Apr. 13, 2017), https://apps.fcc.gov/edocs_public/attachmatch/DOC-344398A1.pdf.

[35] *See* FCC, *Statement of Chairman Kevin J. Martin* (Mar. 20, 2008), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280968A1.pdf.

[36] 47 U.S.C. § 309(j)(3)(D).

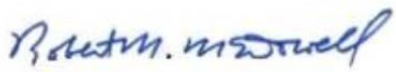
[37] 47 C.F.R. § 96.35(a).

for other similarly licensed services."[38] This increased flexibility, in combination with the larger geographic license areas, will provide opportunities for smaller providers seeking to offer service to smaller, more focused areas. Indeed, applying partitioning and disaggregation rules has been shown to "expedite provision of services in areas that might not otherwise receive service in the near term."[39] At the same time, these rule changes would promote deployments on a larger geographic scale, because PAL licensees could aggregate PEAs into larger service areas that allow for economies of scale and scope. Finally, a robust secondary market would mitigate concerns that authorizing PALs with longer, renewable terms and larger license areas might result in inefficient spectrum use.[40]

III. CONCLUSION

For the foregoing reasons, the Commission should revise the service rules for PALs consistent with these comments to ensure investment and innovation in the band and U.S. leadership in the deployment of 5G services.

Respectfully submitted,



Robert M. McDowell
Chief Public Policy Advisor

/s/ Margaret McCarthy

Margaret McCarthy
Executive Director

Mobile Future
1325 Pennsylvania Avenue, NW, Ste. 600
Washington, DC 20004
(202) 756-4154
www.mobilefuture.org

December 28, 2017

[38] *NPRM*, 32 FCC Rcd at 8083 ¶ 31.

[39] *Incentive Auction R&O*, 29 FCC Rcd at 6890 ¶ 801.

[40] *See id.*